

Date: Monday, 3/19/2007 4:41:23 PM
User: Kim Johnston

Process Sheet

| | | | |
|-----------------------|--|------------------|-----------------------------|
| Customer | : CU-DAR001 Dart Helicopters Services | Drawing Name | : FWD TUBE ASSEMBLY |
| Job Number | : 31310 | | |
| Estimate Number | : 10467 | | |
| P.O. Number | : | Part Number | : D3391021 |
| This Issue | : 3/19/2007 S.O. No. : | Drawing Number | : D3391 REV.F |
| Prsht Rev. | : NC | Project Number | : N/A |
| First Issue | : / / Type : MACHINED PARTS | Drawing Revision | : F |
| Previous Run | : 31309 | Material | : |
| Written By | : | Due Date | : 4/10/2007 Qty: 1 Um: Each |
| Checked & Approved By | : <u>2007-03-20</u> | | |
| Comment | : Est. A 05.09.13 New issue KJJ/JLM | | |
| | : Est. B 06.02.10 Dwg rev.D ecn 773 EC | | |
| | : Est. C 06.05.02 Added inspections EC | | |
| | : est D 07.03.13 rev F dwg EC | | |

Additional Product

Job Number:



| | | |
|---------|-----------------------|---------------|
| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|

| | | |
|-----|----------|----------------|
| 1.0 | D6013047 | SKIDTUBE MAT'L |
|-----|----------|----------------|



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
SKIDTUBE MAT'L

Pick:

| | | |
|-----|-------------|-------------|
| Qty | Part Number | Description |
| 1 | D6013-047 | Extrusion |

Batch

B 26547JB 7-3-22

| | | |
|-----|----------------|-------------------------|
| 2.0 | LANDING GEAR 1 | LANDING GEAR RESOURCE 1 |
|-----|----------------|-------------------------|



Comment: LANDING GEAR RESOURCE 1
Cut extrusion to 46.52 +0.010 -0.020

JB 7-3-22

| | | |
|-----|---------|-----------------|
| 3.0 | BENDING | BENDING MACHINE |
|-----|---------|-----------------|



Comment: No bender
Bend as per Dwg D3391 Using Bend Prog 3391021

EL 7-3-28

| | | |
|-----|-----|------------------------------|
| 4.0 | QC5 | INSPECT WORK TO CURRENT STEP |
|-----|-----|------------------------------|



Comment: INSPECT WORK TO CURRENT STEP

JP 7-3-29

| | | |
|-----|-------|--------------------------------|
| 5.0 | HAAS1 | HAAS CNC VERTICAL MACHINING #1 |
|-----|-------|--------------------------------|



Comment: HAAS CNC VERTICAL MACHINING #1
1-Machine as per Folio FA590 Rev. AA & Dwg D3391 Rev. F
Identify as D3391-1

2-Deburr

EC 07-04-02

①

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
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| | | | | | | | | |

NOTE: Date & initial all entries

Date: Monday, 3/19/2007 4:41:23 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 31310

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

SC 07-04-02

(1)

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

7-4-4 07/04/02

(1)

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill and c/sink float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size)
(ONLY DRILL HOLES MARKED "A")

2-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step

3-Open tow cap holes to .208" as per Dwg D3391

4-Open Tow Ring hole to .640" as per Dwg D3391

5-Drill wearplate holes as per Dwg D3391 Using Dt8217 & DT8878

N/A

6--Deburr

DP 7-4-4

DP
7-4-4

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

7-05-03 (1)

10.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

JS 07-07-19

(1)

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

M-1 07/07/19 (1)

12.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

BR/M-1 07-07-19

07/07/02

6.1 Drill x1 off Cap hole as per Dwg D3391

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
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| | | | | | | | | |

NOTE: Date & initial all entries

Date: Monday, 3/19/2007 4:41:24 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 31310

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

FL 07/07/24 ①

14.0

NAS1330C3KB166

INSERT



Comment: Qty.: 20.0000 Each(s)/Unit Total : 20.0000 Each(s)

Rivnut

Pick:

Qty

Part Number

Description

Batch

14

NAS1330C3KB166

Insert

M102849 JS

15.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Install Inserts as per Dwg

JS 07-07-24 ①

16.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

En 07/07/24 ④

17.0

D3401041

Tow Cap Assembly



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Tow Cap Assembly

Pick:

Qty

Part Number

Description

Batch

1

D3401-041

Tow Cap

B31346

JS

18.0

D356413

WEARSHOE



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARSHOE

B31347

JS

19.0

D356613

GASKET



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

GASKET

B31348

JS 07-07-24

①

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
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NOTE: Date & initial all entries

Date: Monday, 3/19/2007 4:41:24 PM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 31310

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

20.0

AN3C4A

BOLT



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)

Bolt

Pick:

Qty

Part Number

Description

Batch

4

AN3C4A

Bolt

M104955

21

21.0

NAS1515H3L

WASHER



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Washer

Pick:

Qty

Part Number

Description

Batch

4

NAS1515H3L

Washer

M105057

21

22.0

AN960C10L

washer



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)

washer

M105507

21

23.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: SMALL & MEDIUM FAB RESOURCE 1

Install tow Cap as per Dwg D3391

Identify as D3391-021

B31346

21

24.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

Inspect thread of each insert using DT8821

inspect to current step

Part of 30 @

25.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

PP

33556

07/08/01 @

26.0

QC21

FINAL INSPECTION/W/O RELEASE

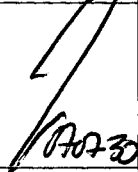


Comment: FINAL INSPECTION/W/O RELEASE

07.08.02

21

Dart Aerospace Ltd

| W/O: 31310 | | WORK ORDER CHANGES | | | | | |
|------------|--------|---|----|----------|-----|---|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| 07/07/24 | # 24.0 | Change to inspect to current step not inspect thread. Permanent Change | En | 07/07/24 | |  | En 07/07/24 |
| | | | | | | | |

Part No: D 3391-021 PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

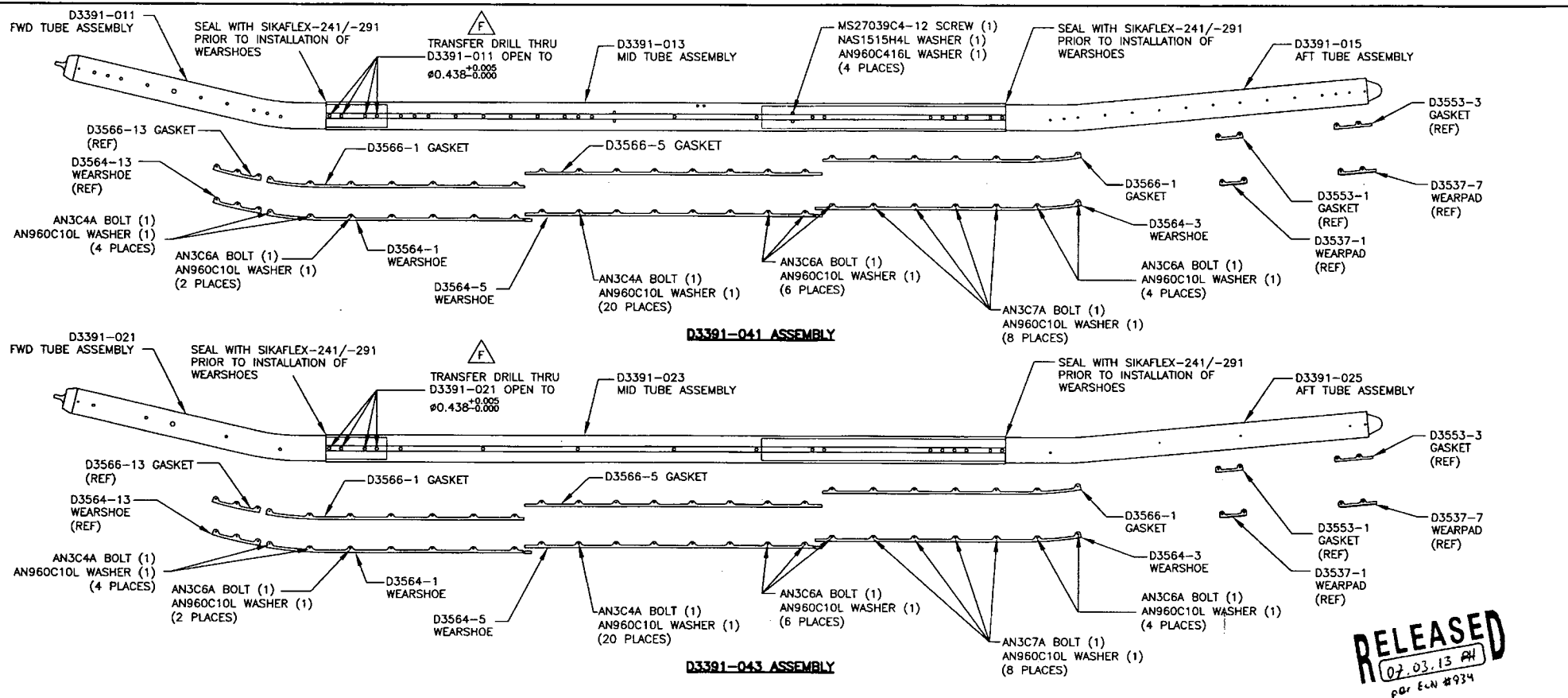
| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries



D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

| QTY -041 | QTY -043 | PART NUMBER | DESCRIPTION |
|----------|----------|--------------|-------------------------|
| X | X | D3391-041 | FLOAT SKIDTUBE ASSEMBLY |
| | | D3391-043 | FLOAT SKIDTUBE ASSEMBLY |
| 1 | | D3391-011 | FWD TUBE ASSEMBLY |
| 1 | | D3391-013 | MID TUBE ASSEMBLY |
| 1 | | D3391-015 | AFT TUBE ASSEMBLY |
| 1 | 1 | D3391-021 | FWD TUBE ASSEMBLY |
| 1 | 1 | D3391-023 | MID TUBE ASSEMBLY |
| 1 | 1 | D3391-025 | AFT TUBE ASSEMBLY |
| 1 | 1 | D3564-1 | WEARSHOE |
| 1 | 1 | D3564-3 | WEARSHOE |
| 1 | 1 | D3564-5 | WEARSHOE |
| 2 | 2 | D3566-1 | GASKET |
| 1 | 1 | D3566-5 | GASKET |
| 24 | 24 | AN3C4A | BOLT |
| 12 | 12 | AN3C6A | BOLT |
| 8 | 8 | AN3C7A | BOLT |
| 44 | 44 | AN960C10L | WASHER |
| 4 | 4 | MS27039C4-12 | SCREW |
| 4 | 4 | NAS1515H4L | WASHER |
| 4 | 4 | AN960C416L | WASHER |

GENERAL NOTES

- ALL DIMENSIONS ARE IN INCHES
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL 'E' SIZE HOLES (#0.250-#0.257) FOR WEARSHOE INSERTS. C'SINK #0.391/#0.425 x 100" AS APPLICABLE AND INSTALL INSERTS EXCEPT WHERE INDICATED.

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| | | |
|---------|----------|---|
| F | 07.01.18 | ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021 |
| E | 06.04.25 | CHANGE TOLERANCE, EASE MANUFACTURE |
| D | 06.01.23 | UPDATE TOLERANCE, CHANGE HOLE SIZE |
| C | 05.09.27 | LENGTHEN AFT EXTENSION |
| B | 05.06.10 | DRAWING UPDATES |
| A | 05.02.07 | NEW ISSUE |
| DESIGN | PH | DRAWN BY |
| CHECKED | PH | APPROVED |
| DATE | 07.01.18 | TITLE |
| | | 412 FLOAT SKIDTUBE |

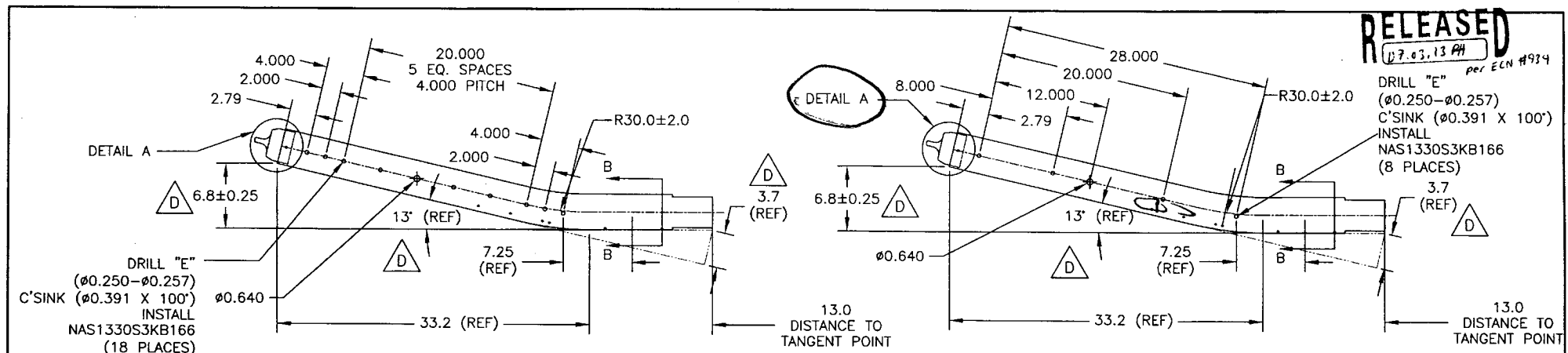
DART DART AEROSPACE USA, INC.
PORT HADLOCK, WA

DRAWING NO. D3391 REV. F
SHEET 1 OF 5

SCALE NTS

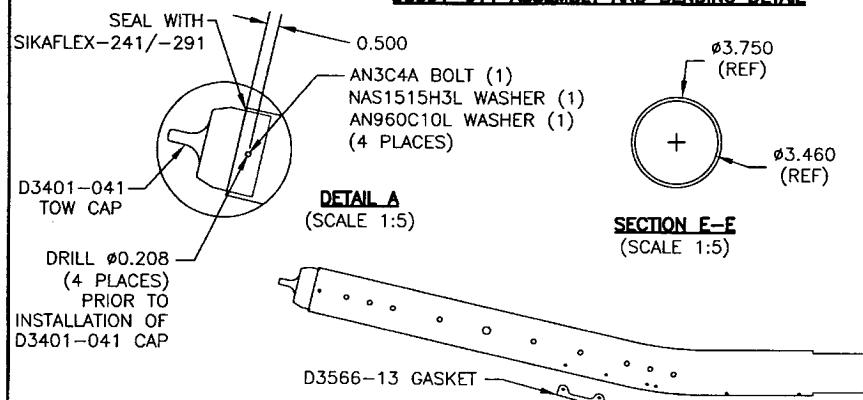
NO. 1310
WORK ORDER
SUBJECT TO AMENDMENT
WITHOUT NOTICE
RETURN TO
ENGINEERING
CONTROLLED COPY
SHOP COPY

RELEASED
 07.03.13 AH
 per ECN #934

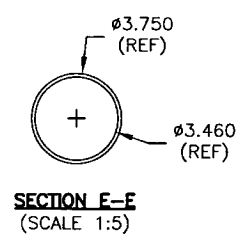


D3391-011 ASSEMBLY AND BENDING DETAIL

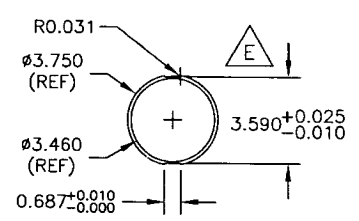
D3391-021 ASSEMBLY AND BENDING DETAIL



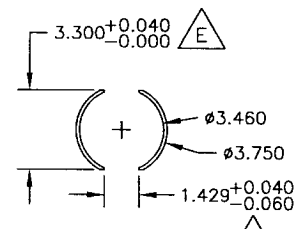
DETAIL A
 (SCALE 1:5)



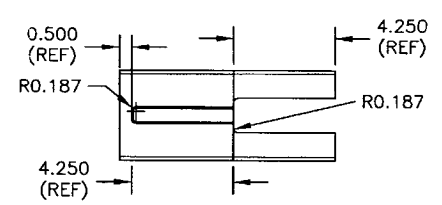
SECTION E-E
 (SCALE 1:5)



SECTION D-D
 (SCALE 1:5)

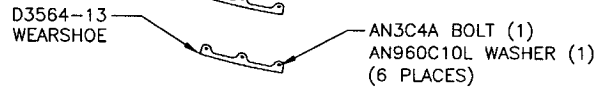


SECTION C-C
 (SCALE 1:5)



VIEW Z-Z
 (SCALE 1:5)

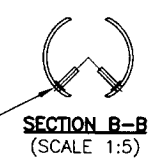
D3391-011/-021 WEARSHOE ASSEMBLY



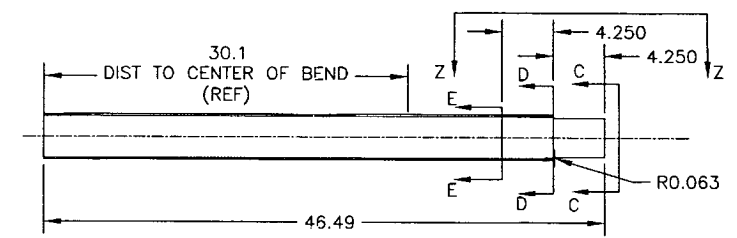
D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST

| QTY - 011 | QTY - 021 | PART NUMBER | DESCRIPTION |
|-----------|-----------|----------------|----------------------------|
| X | X | D3391-011 | FWD TUBE ASSEMBLY |
| | | D3391-021 | FWD TUBE ASSEMBLY |
| 1 | 1 | D6013-047 | FWD TUBE |
| 1 | 1 | D3401-041 | TOW CAP |
| 1 | 1 | D3564-13 | WEARSHOE |
| 1 | 1 | D3566-13 | GASKET |
| 10 | 10 | AN3C4A | BOLT |
| 4 | 4 | NAS1515H3L | WASHER |
| 10 | 10 | AN960C10L | WASHER |
| 30 | 20 | NAS1330S3KB166 | INSERT (OR NAS1330C3KB166) |

5
 DRILL "E"
 (Ø0.250-Ø0.257)
 C'SINK (Ø0.391 X 100')
 INSTALL
 NAS1330S3KB166
 (12 PLACES)



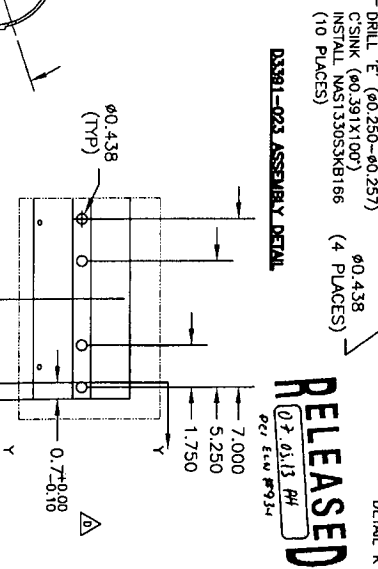
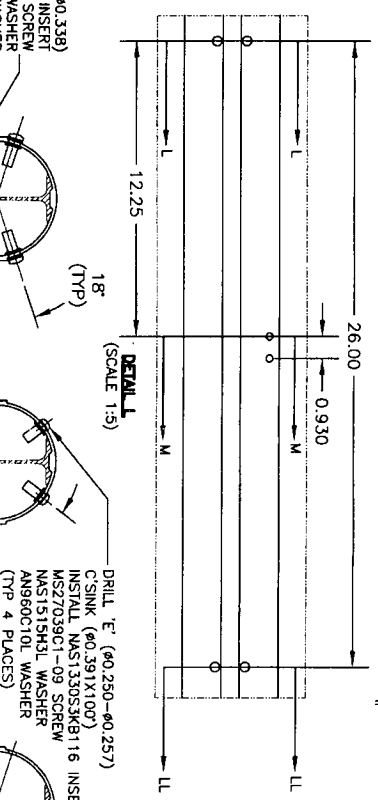
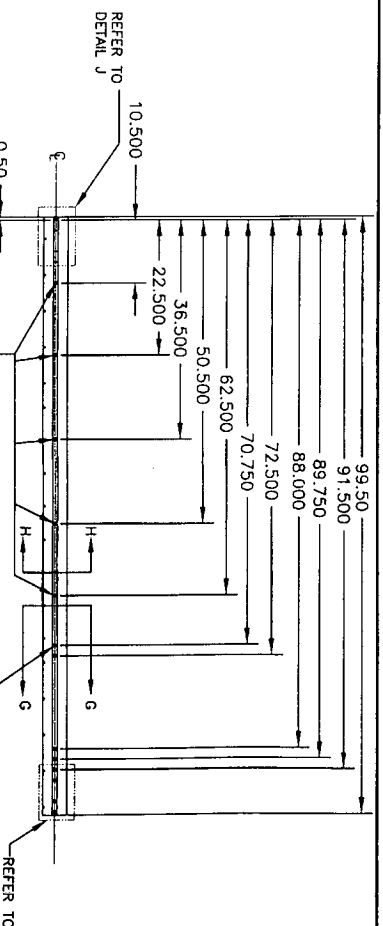
SECTION B-B
 (SCALE 1:5)



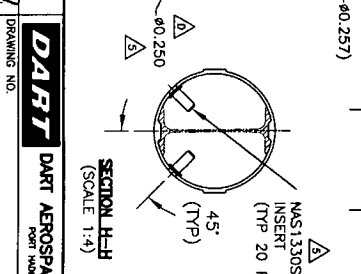
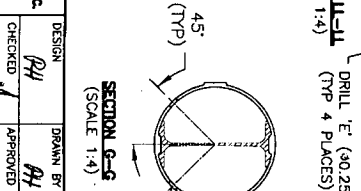
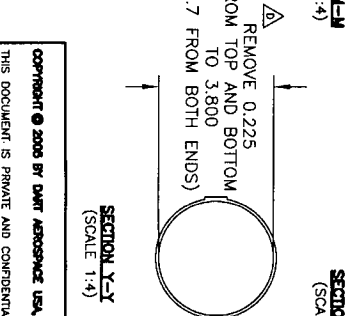
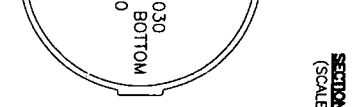
D3391-1 DRILLING AND CUTTING DETAIL
 (MAKE FROM D6013-047 SKIDTUBE MATERIAL)

NO
 31510
 WORK ORDER
 WITHOUT NOTICE
 UNCONTROLLED COPY
 RETURN TO
 SHOP COPY
 ENGINEERING

| | | | | |
|---|--|-----------------------------|----------------|---|
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| DATE 07.01.18 | | TITLE 412 FLOAT SKIDTUBE | | REV. F SHEET 2 OF 5 SCALE 1:10 |




SECTION 1-1
(SCALE 1:4)

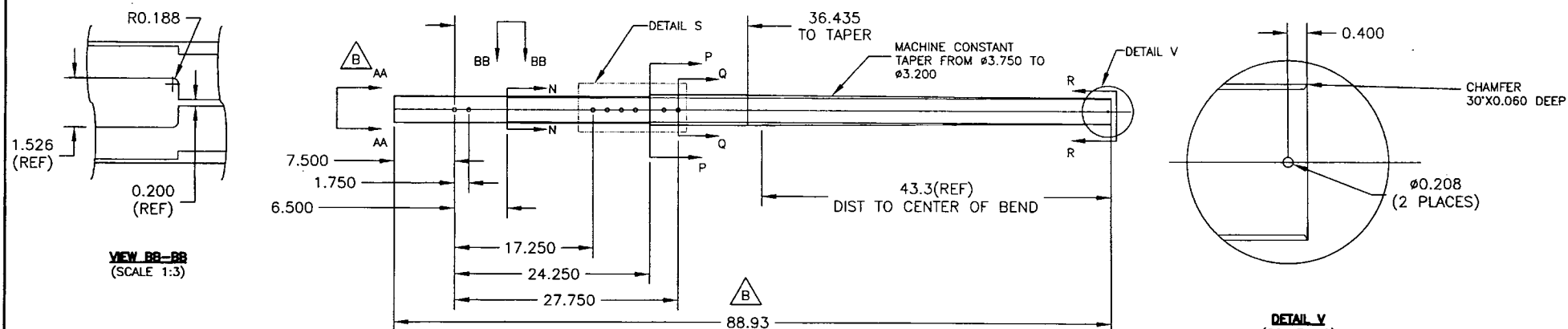


SECTION X-X
(SCALE 1:2)

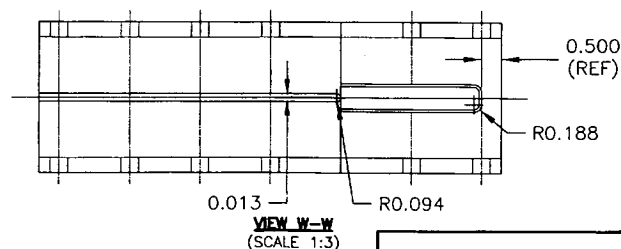
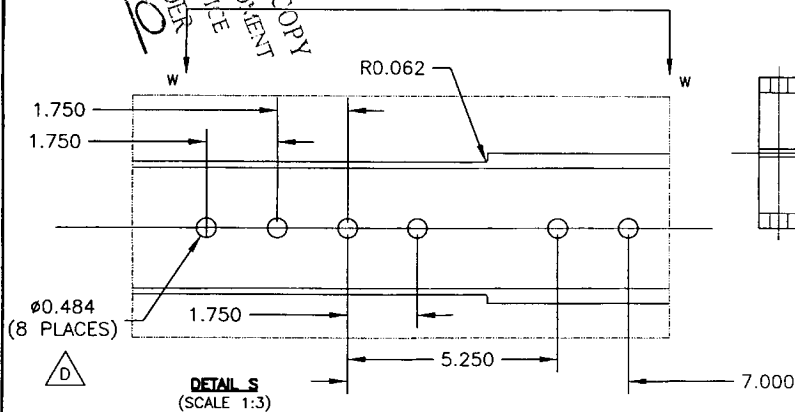
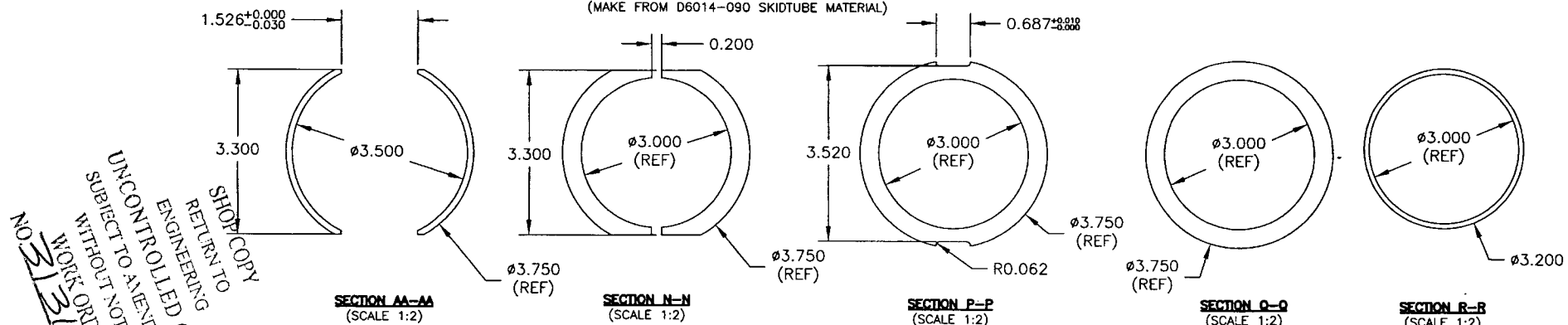
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| | | | |
|---|-----------------------|-----------------------------|---|
|  DART AEROSPACE USA, INC. Port Huenock, WA | | DRAWING NO. D3391 | REV. F 3 OF 5 SHEET 3 OF 5 SCALE 1:20 |
| DESIGNED <i>PH</i> | DRAWN BY <i>PH</i> | CHECKED <i>PH</i> | APPROVED <i>PH</i> |
| DATE 07/01/18 | | TITLE 412 FLOAT SKIDTUBE | |

RELEASED
07-05-13 PM
DET ESN #93-1



D3391-3 AFT DRILLING AND CUTTING DETAIL
 (MAKE FROM D6014-090 SKIDTUBE MATERIAL)



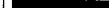

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| DESIGN PH | DRAWN BY PH | DART DART AEROSPACE USA, INC. PORT HADLOCK, MA | REV. F |
| CHECKED # | APPROVED # | DRAWING NO. D3391 | SHEET 4 OF 5 |
| DATE 07.01.18 | TITLE 412 FLOAT SKIDTUBE | SCALE 1:12 | |



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